

CLAIMS

1. Static mixer, with or without reaction, provided with a set of basic cells, characterized in that these cells are individually composed of an individualised chamber (1), provided with at least two connecting channels (2) connected to the chamber, at least two of these channels being oblique relatively to the resulting direction (x) of the flow within the mixer, and with at least two additional apertures (0) connecting the interior of the chamber and the exterior of the respective cell - for connection to external channels -, and in that said basic cells are sequentially interconnected between themselves in a two or three-dimensional space.
2. Network mixer according to claim 1, characterized in that the basic cells that constitute the mixer, successively interconnected between themselves, all or some of them, present different linear and/or angular dimensions of its characteristic elements (0, 1, 2).
3. Network mixer according to either claim 1 or claim 2, characterized in that each basic cell is composed of one spherical chamber (1), two or three cylindrical channels (2) and two or three apertures (0) for connection to external channels.
4. Network mixer according to either claim 1 or claim 2, characterized in that each basic cell is composed of one cylindrical chamber (1) with axis normal to the mixer's plane, two or three rectangular prismatic channels extending throughout the whole height of the cylindrical surface and according to the mixer's

plane, and two or three apertures (0) in the referred surface, for connection to external channels.

5. Network mixer according to either claim 1 or claim 2, characterized in that comprises simultaneously basic cells as described in claims 3 and 4.
6. Network mixer according to any of claims 1 to 5, characterized in that in each basic cell, the feed streams injection to the respective individualised chamber (1) is accomplished by channels whose axis are coincident with the axis of the channels associated with the respective chamber through which channels is promoted the ejection of the resulting mixture streams.
7. Network mixer according to any of claims 1 to 5, characterized in that in some cells the feed streams injection to the respective individualised chamber (1), or alternatively the mixture streams ejection from the chamber, is accomplished by cylindrical channels whose axis is normal to the plane xy and contains the centre of the chamber.
8. Network mixer according to claim 6, characterized in that in some cells the feed streams injection to the respective individualised chamber (1), or alternatively the mixture streams ejection from the chamber, is accomplished by a combined way with the one specified in claim 7.
9. Mixing process for chemical species in a continuous flow, characterized in that two or more of these species pass through the network mixer according to claim 1, where the injection from the mixer's

exterior is either done simultaneously for all species from the start of the mixer, or only for the two first species, the other species being progressively injected from the exterior in predetermined mixing points of the mixer, and where the ejection to the mixer's exterior is done either at the end of the mixer, in relation to the resulting mixture, or simultaneously in predetermined mixing points of the mixer, relatively to intermediate mixtures.

10. Process according to the previous claim characterized in that the eventual intermediate injections and ejections take place in the mixer in cells according to claim 6 or 8 and initial injections or final ejections take place in cells according to claim 6 or 7.